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LEGUMINOSAE—VII

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The last previous number in this series of publications, devoted to discussions of older taxa and the description of new ones which come to light in the course of research and curation of neotropical legumes, appeared in 1963. The time-gap is one result of my preoccupation during the intervening years with other matters which precluded scientific investigation of these plants.

Arapatiella psilophylla (Harms) Cowan, comb. nov.

Tachigalia psilophylla Harms, Notizblatt 59:305. 30 June 1915.

Dicymbe psilophylla (Harms) Dwyer, Ann. Missouri Bot. Gard. 41:254. May 1954.

Arapatiella trepocarpa Rizzini & A. Mattos, Rev. Brasil. Biol. 32(3):323-333. Sep 1972.

Description: Tree (8-) 12-20 [25] m tall, the trunk 15-40 [-60] cm in diameter, [the bark dark brown, 5-8 mm thick], the branchlets at first minutely puberulous but soon becoming glabrous; stipules conspicuous, usually persistent, 15-37 [-60] mm long, [15-] 20-40 [-45] mm wide, semicircular to oblate in outline, coriaceous, glabrous, sometimes narrowly revolute marginally, venation prominulous on both sides; leaves paripinnate [or imparipinnate], the petioles 15-40 mm long, minutely puberulous sparingly, the rachis 3-8 cm long, minutely puberulous, terete; leaflets 2- or 3-jugate, glabrous, the petiolules 2-5 mm long, the blades (3.5-) 5-15 cm long, 3-5 (-7) cm wide, elliptic, acute to acuminate apically, the base acute, chartaceous to subcoriaceous, nitid above, the venules plane above, prominulous and slightly salient on the lower surface; inflorescences terminal, (2-) 3.5-6 [-10] cm long, racemose or panicles of racemes, the axes strigulose, the old ones with prominently raised bract-scars, the bracts and bracteoles caducous, 1-3 mm long, 1.5-3 mm wide, ovate-oblate, densely strigulose externally, glabrous within; pedicels [4-] 7-10 mm long, strigulose, the hypanthium tubular-

turbinate, [4-] 5 mm long, 2.5-3 mm in diameter, strigulose externally, glabrous within; sepals 5, green, strongly imbricate, oval, rounded apically, cucullate, 4.5-7 mm long, 3.5-5.5 [-6] mm wide, strigulose externally and on the basal one-third on the inner surfaces, ciliate, arising from the apex of the hypanthium, somewhat reflexed in anthesis; petals 5, white, free, oblanceolate to obovate, the claw 3-5 mm long, sericeous externally, glabrous within, the blade glabrous, 5.5-9 mm long, 5-8 mm wide; stamens 10, all fertile, white, glabrous, the filaments 13-19 mm long, the anthers versatile, dorsifixed, oblong, [3-] 3.5 mm long, 2-2.5 mm wide, the pollen grains globose, about 65μ in diameter, the surface conspicuously and loosely reticulate; stigma disciform, peltate, about 1 mm in diameter, glabrous, the style slender, white, 13 [-25] mm long, strigose sparingly at the base, the ovary densely strigose, 4-5 [-8] mm long, 1.5-2 mm wide, the ovules 6-8, the gynophore 3.5-4 mm long, glabrous basally but strigulose in the upper half, attached centrally at the base of the hypanthium; fruit (immature fide Harms) very narrowly oblanceolate, flattened laterally, strigulose densely, 31 [-40] cm long, 2 [-4] cm wide near apex, [the valves at maturity forming spirals in dehiscing, the seeds ellipsoid-complanate, black, ca. 3.5-4 cm long and 2 cm wide].

Collections Examined: BRAZIL-BAHIA: Centro de Pesquisa do Cacau (CEPEC), Ilhéus, May 1965, Belém & Magalhães 1097 (NY, US) and 1121 (NY, US); Rodovia, BR 5, 16 km S. Eunapolis, Sept. 1966, Belém & Pinheiro 2622 (NY, US) and 2679 (NY, US); near Esperança, Jan. 1822, Riedel 804 (type collection of *Tachigalia psilophylla* Harms) (two leaflets and type photograph at F); CEPLAC; Itabuna, July 1964, Silva 58299 (NY, US).

Although I have not had the opportunity to study the two collections on which Rizzini and Mattos based the new genus, there is no reasonable doubt that they represent the same taxon as those above. They are also from Bahia: Una, July 1970, A. Mattos & H. da C. Monteiro Netto 507 (RB 145159) (RB); Camacan-Mascote, May 1970, T. S. dos Santos 834 (RB 150708) (type collection of *Arapatiella trepocarpa* Rizzini & Mattos; holotype RB). Both collections record the same vernacular name: Faveca-vermelha.

Discussion: During conversations at the First International Congress of Systematic and Evolutionary Biology in August 1973, Mary Arroyo and Howard Irwin of the New York Botanical Garden alerted me to the publication of a monotypic new genus, which they had also considered publishing, but which I had in press at that time! I had become aware of the plant in about 1955 when I was working with some collections of *Tachigalia*. Dwyer in revising this genus in 1954 had transferred *T. psilophylla* Harms to *Dicymbe*, which I was then studying, on the basis of the Field Museum's type-fragment and type-photograph from the Berlin Herbarium. When I saw these materials I was convinced that the taxon involved was certainly not a *Dicymbe*-species but I requested

Leningrad to lend me the isotype which Harms reported in his original description to be there, so that correct disposition of the species might be effected. The specimen could not be located in the herbarium of the Komarov Botanical Institute then, nor in a second search in mid-1973.

Early this year, two new collections came to hand showing the enormous foliose stipules I had been remembering for years as characteristic of the enigmatic *Tachigalia psilophylla* Harms. Comparison with the original description, the Chicago fragment from the Berlin holotype, and with the type photograph left no doubt whatever that they were conspecific. Only one problem remained—the original one: To what genus should the species be referred? That question has now been answered by the publication of *Arapatiella* Rizzini & Mattos.

After very considerable study, I had come to the same conclusion as these authors—that a new genus of the Tribe Sclerolobieae-Caesalpiinoideae required description. Rizzini and Mattos included an extensive, detailed description of the wood anatomy which I have not repeated here, but I have included my own description of the vegetative and floral morphology, enclosing in brackets details from the Rizzini and Mattos description which were not evident in the collections I studied. I am also presenting below the key I had prepared to distinguish the new genus from its relatives.

Only a few, perhaps minor, discrepancies emerge from comparison of the Rizzini-Mattos description with those of Harms and Cowan. They describe the bracts as being similar in form and size to the stipules but I have considered the foliose structures at the base of the inflorescence to be barely reduced stipules at the generally leafless terminal nodes. According to my interpretation then, the bractlets at the base of each pedicel (true bracteoles) and at the base of each branch of the inflorescence are identical in shape, size, and persistence. Of more fundamental importance is the fact that *Arapatiella* is described as having imparipinnate leaves and the drawing in the article confirms this interpretation. On the other hand, all the material I have seen, as well as Harms' description and the type photograph, exhibit only paripinnate leaves. This is usually a quite conservative, reliable characteristic for distinguishing genera in the legumes, so I look forward to determining whether the difference is the result of unusual variability or faulty observation and interpretation. Following is the key to the new genus and related genera.

1. Hypanthium shallow-cupular, much shorter than the sepals and petals; leaves sometimes bipinnate 4
 Hypanthium more or less tubular, as long as, or only slightly shorter than, the sepals 2
2. Hypanthium excentric, the gynophore adnate to its inner wall for at least part of its length; stigma simple, punctiform *Tachigalia*
 Hypanthium equilateral, tubular-turbinate, the gynophore arising from the center of its base; stigma broadly disciform and peltate or expanded-truncate 3

3. Stigma peltate broadly; stamens 10; legume valves coiling retrorsely at dehiscence *Arapatiella*
 Stigma truncate; stamens 12-20; legume valves never coiled at dehiscence *Campsiandra*
4. Leaves bipinnate; stigma massive, peltate *Peltophorum*
 Leaves pinnate; stigma not peltate, mostly truncate 5
5. Innermost sepal glandular-fimbriate marginally; fruits flat with undulating margin *Melanoxyton*
 None of the sepals glandular-fimbriate marginally; fruits not undulate-margined 6
6. Ovary nearly sessile, the gynophore broader at the apex and with small wing-like processes; fruit a woody follicle with red seeds *Batesia*
 Ovary clearly stalked, the gynophore tapering gradually to the base of the ovary; fruit not follicular 7
7. Stigma almost punctiform, smaller than the diameter of the style; leaves paripinnate; fruits flat, indehiscent *Sclerolobium*
 Stigma truncate, equal to the diameter of the style, penicillate; leaves imparipinnate; fruits dehiscent *Recordoxyton*

***Macrolobium conjunctum* Cowan, sp. nov.**

Description: Arbor 2 m alta, ramulis glabris, stipulis caducis, non visis; petioli anguste alati, 12-13 mm longi, glabri, rhachibus 4.5-6 cm longis, anguste alatis, glabris; foliola glabra, sessilia, 4-jugata, 3-4.5 cm longa, 2-2.5 cm lata, oblonga, ad apicem truncata, ad basim inaequilateralia, obtusa, venis venulisque manifestis supra, inflorescentiae axillares, 5.5-9.5 cm longae, glabrae, pedunculo 15-22 mm longo, bracteis bracteolisque caducis, non visis, pedicello 7-8 mm longo, bracteolis chartaceis, rubris, glabris, 12-14 mm longis, 4-5 mm latis, lanceolatis, acutis ad subacuminatis; hypanthium zygomorphum, cupulare, 3 mm altum, glabrum, sepalis 4, 5-5.5 mm longis, 1-2.5 mm latis, lanceolatis, longo-acuminatis, glabris; petali stipes ca. 4 mm longus, glaber, lamina ca. 3.5 mm longa et 3 mm lata, obovata, glabra; stamina fertilia 3 (vel 4?), staminodia 2 vel 3, filamentis omnibus connatis in tubo 1-1.5 mm longo, 18-20 mm longis, glabris; gynoecium glabrum, stigma capitellato, stylo filiformi, ca. 17 mm longo, ovario 2-2.5 mm longo, 1 mm lato, gynophoro 3-4 mm longo; fructus non visus.

Type-Collection: W. A. Egler 1025 (holotype NY, isotype-frag. US), "lagedas de arenito, Erererí, Rio Cururú, Tapajós, Pará, Pará," Brazil, 25 July 1959.

Discussion and Etymology: The specific epithet for the new species calls attention to one of its most striking characteristics, one which is startling to find in the genus. This is the first known species with a true staminal tube, formed by the connation of the filaments basally. In this respect it is easily set off from other species of the genus but it also differs markedly from its near-relative (*M. multijugum* and *M. longipes*)

in still other characteristics. The bracteoles are similar in the new species and in *M. longipes*, with respect to color and texture but smaller and not attenuate apically. Unlike *M. longipes*, but like *M. multijugum*, the new species has inflorescences with an elongated peduncle; the flowers of the latter two species are quite different morphologically.

Macrobium dressleri Cowan, sp. nov.

Description: Arbor 10 m alta, glabra; folia glabra, petiolo ca. 3 mm longo, foliola unijugata, sessilia, laminis anguste oblongo-ellipticis, 27.5–31.5 cm longis, 7.5–8 cm latis, valde inaequilateralibus ad basim, latere superiore acuto et inferiore rotundato, ad apicem obtuse acuminatis, conspicue punctatis infra, costa salientibus utrinque, venis caeteris planis obscuris; inflorescentiae 2.5–7 cm longae, axe minute puberulo, bracteis non visis; pedicelli 2–2.5 mm longi, minute puberuli, bracteolis 9–10 mm longis, 5–5.5 mm latis, obovatis, rotundatis cucullatisque, minute puberulis extus, intus glabris; hypanthium tubulare, 7.5–9 mm longum, minute puberulum, stipite 1–1.5 mm longo, minute puberulo, sepalis 4, elliptico-oblongis, 11–12 mm longis, 5 mm latis, costa extus minute puberula excepta glabris, intus viridibus et rubido-lineatis; petalum album, lamina sessili, margine undulata, 25–30 mm longa, 11–15 mm lata, elliptica, glabra extus, intus costa villosa; filamenta leviter villosa, 24–26 mm longa, antheris ellipticis, ca. 4 mm longis et 2 mm latis, glabris; gynoeceum pubescens, stylo ca. 20 mm longo, leviter puberulo, ovario ca. 5 mm longo et 1.5 mm lato, oblongo, velutino omnibus lateribus sed etiam villosa ad suturam inferiorem, gynophori parte libera ca. 4 mm longa, puberula et leviter villosa; fructus non visus.

Type-Collection: Mireya D. Correa A., R. L. Dressler, and D. Sucre 1837 (holotype US, sheet no. 2698430), "Camino de Llano a Cartí. Aproximadamente 14 kms. de la carretera a Chepo. Altura 350–400 m.," Prov. Panama, 9 January 1973.

Discussion and Etymology: Two other Panamanian species—*M. pittieri* and *M. modicopetalum*—are obviously related to this new one, named for one of the collectors of the type-material. From these and three other relatives—*M. obtusum* (Venezuela) *M. archeri* (Colombia), and *M. floridum* (Venezuela)—the new species can be separated most readily by a combination of leaflet shape, gynoeceal pubescence, flower size, and by details of the petal. The following key facilitates recognition of existing collections assigned to these five taxa, which clearly share a common ancestor.

1. Ovary pubescent on all surfaces 2
 Ovary only pubescent marginally or glabrous 3
2. Leaflets narrowly oblong-elliptic, the apex bluntly acuminate; petal sessile; ovary villose on the lower suture, velutinous on all surfaces; Panama *M. dressleri*

- Leaflets oblance-elliptic, the apex bluntly acute; petal claw about 3 mm long; ovary pilosulose marginally, puberulous laterally; Venezuela *M. floridum*
3. Leaflets oblanceolate, caudate-acuminate; petal ca. 42 mm long with a 5 mm stipe *M. pittieri*
 Leaflets elliptic; petal smaller, sessile or with a shorter stipe 4
4. Flowers 8–13 mm long*, the petal 11–14 mm long; Panama
 *M. modicopetalum*
 Flowers 17–36 mm long, the petal 20–28 mm long; South America .. 5
5. Leaflets rounded apically; flowers 17–23 mm long, the petal 20 mm long with a claw 3 mm long; Venezuela *M. obtusum*
 Leaflets acuminate; flowers 34–36 mm long, the petal 28 mm long, sessile; Colombia *M. archeri*

It appears that the closest relative (on the basis of morphological similarity) of the new species is the Venezuelan *M. floridum*, the most poorly known of this complex. However, since the differences separating the several taxa are mostly quantitative there is little profit from further speculation on relationships. There are very few collections of any of the taxa and additional ones are eagerly anticipated.

Macrolobium extensum Cowan, sp. nov.

Description: Arbor 10 m alta, trunco 20 cm diametro, ramulis minute puberulis; petioli 18–27 mm longi, minute puberuli, supra sulcati, petiolulis nullis; foliola uninjugata, 13–16 cm longa, 6–7.5 cm lata, ad basim inaequilateralia, latere superiore attenuato-acuto et inferiore acuto, ad apicem perabrupte acuta ad acuminata, utrinque et marginaliter minute puberula ad costam et venas primarias, venis planis supra, infra salientibus; inflorescentiae 4–6 cm longae, ramuligerae, axe minute puberulo, bracteis caducis, ca. 1 mm longis, triangularibus; pedicelli 10–20 mm longi, minute puberuli, bracteolis 10–11 mm longis, 4–5 mm latis, obovatis ad oblanceolatis, obtusis, glabris, carosis; hypanthium 6–8 mm longum, glabrum, stipite ca. 2 mm longo, glabro; sepala 6–7 mm longa, 2.5 mm lata, oblonga, obtusa, cucullata; petalum album, 10 mm longum et 6 mm latum, obovatum, glabrum ad basim intus villosulosum; filamenta sparse villosa basim versus, ca. 8 mm longa; gynoeceium glabrum, stylo ca. 7.5 mm longo, ovario oblongo, 3 mm longo et 1 mm lato, gynophori parte libera ca. 1 mm longa; fructus non visus.

Type-Collection: H. P. Fuchs and L. Zanella 21787 (holotype US sheet No. 2639666, isotypes COL, F,G,K,S), right bank of Río Baudó about 120 km from estuary of Quebrada Birudó at foot of Loma Los Choritos, Depto. Chocó, Colombia, 6 Feb. 1967.

Discussion and Etymology: The long pedicels of this species (to which the specific epithet alludes) separates it from all other species of Section

* Length of hypanthium plus sepal.

Stenosolen with unijugate leaflets. It appears no more closely related to one than the other species from which it differs in one or more of the following characters: (1) puberulous leaf parts, (2) size of the bracteoles, sepals, and petal, (3) length and pubescence of the hypanthium, and (4) the glabrous gynoeceium, in addition to the long pedicels.

Macrolobium rigidum Cowan, sp. nov.

Description: Arbor 8 m alta, trunco 12 cm diametro, ramulis glabris, stipulis persistentibus, rigidis, 5–6 mm longis, 2–2.5 mm latis, lanceolatis acutis, glabris, foliolis glabris; petioli 16–17 mm longi, ad apicem rudimento rhachis persistenti aciculari ad 5 mm longo, laminis late ellipticis, rigidis, inaequaliter, obtusis ad basim, ad apicem rotundatis vel raro obtusis, 7–10 cm longis, 4.5–5.5 cm latis, ad margine revolutis, costa plana sed venulis primariis salientibus supra, infra salientibus; inflorescentiae axillares, 4–6 cm longae, axe minute puberulo, pilis inflatis et ad apicem apiculatis, bracteis deciduis, late triangularibus, ca. 2 mm longis et 3 mm latis, acutis, ciliolatis, intus glabris, extus minute inflato-puberulis, pedicello 1–1.5 mm longo, minute inflato-puberulo, bracteolis deciduis, obovatis, apiculatis, 6.5–8.5 mm longis, 4–5 mm latis, minute inflato-puberulis extus, intus glabris, crasso-carnosis; hypanthii stipes 3–3.5 mm longus, inflato-puberulus, hypanthio cupulare, 2.5–3 mm longo, minute inflato-puberulo; sepala 4, late elliptica, rotundata ad apicem, ca. 5 mm longa et 4 mm lata, leviter minute inflato-puberula extus, intus glabra, margine ciliolata; petalum album, obovatum, stipite lato, ca. 3 mm longo, basaliter puberulo extus, intus glabro, petalodiis 2.5–4 mm longis, glabris; filamenta ca. 12 mm longa, pilosula, rosea; gynoeceium dense inflato-puberulum minute, stylo 5.5 mm longo excepta, ad basim leviter puberulo, ovario elliptico, ca. 3.5 mm longo et 1.5 mm lato, gynophoro ca. 1.5 mm longo; fructus non visus.

Type-Collection: R. P. Belém 1733 (holotype US, Sheet no. 2639669, isotype NY), "Margem da Rodovia Camacan-Canavieiras, 32 Km. W de Canavieiras. Restinga," Bahia, Brazil, 8 September 1965.

Discussion and Etymology: Once again the richness of the coastal forest of Bahia is emphasized by the discovery of yet another species of *Macrolobium* there. Although clearly related to *M. latifolium*, this is a very distinct species by virtue of its rigid-coriaceous leaflets (to which characteristic the specific epithet refers) with the margins obviously revolute. Like its relative, *M. rigidum* has minute, inflated hairs on most of the floral parts but the hairs are unique in the genus in that there is an apiculum surmounting each hairlet. Both species have thick bracteoles, four sepals, and an eccentric gynophore.

Recordoxylon irwinii Cowan, sp. nov.

Description: Arbor ca. 6 m alta, trunco 15 cm diametro, ramulis juvenalibus ferrugineo-puberulis sed mox glabrescentibus, stipulis nullis; petioli 4–6 cm longi, glabri; rhaches 6–10 cm longae, leviter puberulae,

teretes; foliola 8-jugata, petiolulis 2–3 mm longis, sparse puberulis, laminae ad medium foliorum 40–45 mm longae, 15–20 mm latae, lanceolato-ellipticae ad lanceolatae, laminis basalibus minoribus et ovatis ad ellipticis, laminis omnibus plus minusve inaequalateralibus, ad basim obtusis, apicaliter acutis, leviter puberulis infra sed glabrescentibus, supra glabris, venis planis supra, infra leviter salientibus; inflorescentiae terminales, paniculato-racemosae, axe dense ferrugineo-puberulo, bracteis bracteolisque caducis non visis, bracteolis prope medium pedicellorum nascentibus; pedicelli 7–9 mm longi, dense ferrugineo-puberuli, hypanthio ca. 1 mm profundo, extus ferrugineo-puberulo; sepala 5, concava, ca. 5 mm longa et 3 mm lata, ovalia, ferrugineo-puberula extus, intus albivillosula; petala 5, glabra, lutea, unguiculo ca. 1.5 mm longo, lamina ca. 7 mm diametro, orbiculata; stamina 10, fertilia, 2.5–3.5 mm longa, basaliter dense puberula, antheris 2–2.3 mm longis, 0.8–1 mm latis, oblongis; stigma truncatum, minute penicellatum, stylo ca. 3 mm longo, crasso, leviter puberulo; ovarium ca. 3 mm longum et 0.8 mm latum, oblongum, dense puberulum, gynophoro centrali in hypanthio, ca. 0.5 mm longo, glabro; fructus non visus.

Type-Collection: H. S. Irwin, R. M. Harley, G. L. Smith 31179 (holotype US, sheet no. 2698429, isotype NY), "cut-over gallery forest, ca. 28 km. N. of Seabra, road to Agua de Rega, ca. 1000 m. elev., Serra de Agua de Rega," Bahia, Brazil, 27 February 1971.

Discussion: The new species is quite distinct from the three other species in the genus by its much smaller flowers—less than half the size of those of the other species. It would be extremely interesting to find fruiting material, as well as more open flowers. The flowers of the type-collection are almost entirely in pre-anthesis. Having mature fruits might be helpful for unraveling the relationships in this complex of genera.

Swartzia calva Cowan, sp. nov.

Description: Arbor 9–10 m alta, ubique glabra, trunco 35 cm diametro, ramulis glabris, stipulis caducis, non visis; petioli 4–4.5 cm longi, teretes, rhachibus 17.5–23 cm longis, teretibus; foliola 4- vel 5-jugata, petiolulis 4–8 mm longis, laminis 8–14.5 cm longis, 4.5–6.5 cm latis, ellipticis ad ovato-ellipticis, basi obtusis, apice acuminatis et mucronulatis, lucidis et venis venulisque salientibus ambobus; inflorescentiae cauligerae vel ramigerae, ca. 17 cm longae, axe crasso, bracteis caducis non visis, bracteolis persistentibus, triangularibus, ca. 0.8 mm longis latisque, prope medium pedicellorum nascentibus; pedicelli 12–14 mm longi, alabastris globosis, ca. 10 mm diametro; calycis segmenta 3, coriacea; petalum album, unguiculo ca. 6 mm longo, lamina oblato-ovata, ca. 25 mm longa et 32 mm lata; stamina maiora 2, filamentis ca. 26 mm longis, antheris oblongis, ca. 3.5 mm longis, minora filamentis 17 mm longis, antheris oblongis, ca. 2.5 mm longis et 0.8 mm latis; ovarium anguste oblongum, 12–14 mm longum, 2.5 mm latum, stylo 11–13 mm longo, gynophoro 11–12 mm longo; fructus non visus.

Type-Collection: J. Schunke V. 2509 (holotype US, sheet no. 2615454, isotype F), "Al borde del bosque alto, y bosque bajo. En abundante luz solar. Tracha a Pisco, a 4 km. de Santa Maria de Nanay. Dtto. Alto Nanay. Altura sobre nivel del mer 130 m.," Prov. Maynas, Peru, 9 March 1968.

Discussion and Etymology: There are many species in this genus characterized by some parts that are glabrous or glabrescent, but one with all parts glabrous from the beginning is most unusual—thus the specific epithet. The new species is related to *S. polyphylla* and to *S. reticulata*. From the first of these, *S. calva* differs in its much larger buds and flowers, as well as in its "baldness." The second relative, *S. reticulata*, shares the distinction of being completely glabrous and it has large flowers like *S. calva*. However, the new species has style and ovary about equal in length whereas in *S. reticulata* the style is much shorter than the ovary. The latter also has much larger coarsely coriaceous leaflets.

Swartzia flaemingii Raddi, variety *polita* Cowan, var. nov.

Description: Arbor 25 m alta, trunco 40 cm diametro; stipulae caducae, 0.7 mm longae, anguste triangulares; petioli 8–9 mm longi, supra canaliculati, dense strigulosi; rhaches 8.5–12.5 cm longae, alatae, aliis valde recurvatis, peritidis supra, infra strigulosi, axe dense striguloso; foliola (10–) 11–15 (–17)-jugata, petiolulis 0.7 mm longis, dense strigulosi, lamina 20–34 mm longis, 7–10 mm latis, coriaceis, nitidissimis et reticulatis costa valde impressis supra, infra brunneolis dense strigulosisque obtusis ad apicem basimque, aliquando leviter emarginatis; inflorescentiae ramigerae vel cauligerae, 7–15 cm longae, axe dense striguloso, bracteae persistentibus, strigulosi, triangularibus, ca. 1 mm longis, bracteolis persistentibus, ca. 0.6 mm longis; pedicelli 12–16 mm longi, dense strigulosi, alabastra globosa, ca. 10 mm diametro, dense striguloso; calycis segmenta 3–5, glabra intus; petalum album, strigosum extus, intus glabrum, unguicula ca. 2 mm longo, lamina late cordata, ca. 25 mm longa lataque; stamina maiora 4 vel 6, glabra, filamentis ca. 17 mm longis, antheris 2.5 mm longis, 1.5 mm latis, ovalibus, connectivo verrucoso, minoribus brevioribus, antheris oblati 0.8 mm longis, 1 mm latis; gynoecium dense albosericum, stigma punctiformi, stylo ca. 1 mm longo, ovario arcuato-elliptico, 5 mm longo, 2.5 mm lato, gynophoro 5 mm longo; fructus non visus.

Type-Collection: R. P. Belém et R. S. Pinheiro 3078 (holotype US, sheet No. 2639671, isotype NY), "mata costeira," Maraú, Bahia, Brazil, 12 January 1967.

Discussion and Etymology: Certainly the closest relationship of this variety is to the second new one distinguished briefly below. Variety *polita* differs most conspicuously by the highly polished appearance of the upper surface of the leaflets (which the varietal epithet emphasizes) but it also has coriaceous, revolute-margined leaflets that are brownish-strigulose on the undersurfaces. In the flower the most striking difference

is in the number of larger stamens, up to six in variety *polita* and twice that many or more in its nearest relative.

***Swartzia flaemingii* Raddi, variety *cognata* Cowan, var. nov.**

Diagnosis: A var. *polita* foliolis 18–20-jugatis, laminis chartaceis, subplanis, flexuoso-pilosis infra, supra hebetibus, inflorescentiis longioribus (ad 22 cm longis), staminibus 10–12 differt.

Type-Collection: R. P. Belém et R. S. Pinheiro 2944 (holotype US, sheet no. 2639670, isotype NY), "Plantação de cacau, Coarcí, Bahia," Brazil, 30 November 1966.

Discussion: These varieties share a large number of characteristics, including the phytogeography: Both occur in the strip of coastal forest (or remnants thereof) along the eastern coast of Bahia. They differ from the other varieties of *S. flaemingii* Raddi by the generally larger number of pairs of narrowly oblong leaflets, and by greater number of large stamens (except for variety *arumateuana* Cowan which has oblong-elliptic, acute leaflets). From two other relatives, *S. multijuga* Vogel and *S. prolata* Cowan, these new subspecific taxa differ among other things, in having densely pubescent gynoecea, but otherwise they are most similar to *S. prolata* which has a much longer gynophore proportionately. *Swartzia macrostachya* Benthham, part of this same complex, has fewer pairs of larger leaflets that are never narrowly oblong as in the new taxa.

Etymology: The epithet for this variety was given to emphasize its morphological similarity, implying relatedness, to variety *polita*.

***Swartzia jimenezii* Cowan, sp. nov.**

Description: Arbor 25 m alta, trunco 50 cm diametro, ramulis dense micro-puberulis; stipulae triangulares, persistentes, ca. 1 mm longae lataeque, dense puberulae; folia immatura, petiolis 2.5–3.3 cm longis, dense puberulis, teretibus; rhaches 3.5–5 cm longae, dense puberulae, teretes; foliola 3-jugata, opposita, petiolulis 3 mm longis, dense puberulis, laminis 5–7 cm longis, 2.5–3.5 cm latis, ellipticis, basi acutis, apicem obtusis, laminis minute strigulosis (leviter supra), costa et venis primariis planis supra, infra leviter salientibus; inflorescentiae ramuligerae, fasciculatae, 4–11 cm longae, axe dense striguloso, bracteis persistentibus, triangularibus, acutis, ca. 1 mm longis latisque, minute strigulosis, bracteolis nullis; pedicelli 7–10 mm longi, minute strigulosi, alabastra globosa, ca. 5 mm diametro, minute strigulosa extus, intus glabra; petalum luteum, glabrum, unguiculo 2–2.5 mm longo, lamina oblata, ca. 10 mm longa et 8 mm lata; stamina maiora 2 (?), glabra, filamentis 7 mm longis, minora glabra, ca. 5 mm longa; stigma oblique truncatum, subsessile, stylo ca. 0.5 mm longo, glabro; ovarium lineare, leviter arcuatum, 5–6 mm longum, 0.8 mm latum, sparse strigulosum, gynophoro 1.5–3 mm longo, glabro; fructus non visus.

Type-Collection: H. Jimenez Saa. 1301 (holotype US, sheet No.

2639667) "Reserva Forestal de Caparo, Estado Barinas, Venezuela," 3 December 1971, 100 m elevation, 2000 mm rainfall.

Discussion and Etymology: Superficially, this new species (named for the collector of the only known material) looks quite similar to *S. leptopetala* but closer examination reveals at least one significant difference. The nearly glabrous gynoeceium of *S. jimenezii* immediately separates it from all its near relatives which have sericeous gynoecea. Locally, it is called "orura barrialera."

***Swartzia micrantha* Cowan, sp. nov.**

Description: Arbuscula 2 m alta, ramulis microstrigulosis sed mox glabrescentibus; stipulae caducae, lineari-lanceolatae, 1–1.5 mm longae; petioli 2.5–3 cm longi, canaliculati, ad apicem stipellati, leviter minuteque strigulosi; rhaches 5–5.5 cm longae, canaliculatae, stipellatae, leviter micro-strigulosae; foliola 2-vel 3-jugata, petiolulis ca. 1 mm longis, laminis 6–8.5 cm longis, 2.5–4.5 cm latis, ellipticis, basi obtusis cordatis, apice obtusis et micro-mucronatis, supra lucidis ad costam leviter microstrigulosis alioqui glabris, infra leviter microstrigulosis, venis planis excepta costa impressa supra et venis primariis salientibus infra: inflorescentiae ramuligerae, 5–7 cm longae, axe minuto-striguloso, bracteis persistentibus, 1.5–2 mm longis, triangularibus, bracteolis ca. 1 mm longis, lineari-lanceolatis ad apicem pedicellorum nascentibus; pedicelli 2–3 mm longi, minute strigulosi; alabastra globosa 4 mm diametro; calycis segmenta 3, intus glabra extus minute strigulosa, decidua; petalum album, unguiculo 3–3.5 mm longo, extus sericeo, lamina oblata, 3.5 mm longa, 5.5 mm lata, extus ad medium sericea; stamina maiora 2 (?), filamentis ca. 6 mm longis, sparse strigulosis, antheris ovali-oblongis, 2 mm longis et ca. 1.2 mm latis, minora glabra, ca. 5 mm longa, antheris subquadratis, ca. 0.7 mm longis et latis; gynoeceium sericeum, stigmatum punctiformi, stylo ca. 1 mm longo, ovario ca. 2.5 mm longo et 1.2 mm lato, obovata, gynophoro ca. 2 mm longo; fructus non visus.

Type-Collection: R. P. Belém and R. S. Pinheiro 2522 (holotype NY, isotype US), "restinga at Belmonte, Bahia," Brazil, 7 July 1966.

Discussion and Etymology: The relationships of this distinctive species is not altogether clear but it appears to be most nearly allied to *S. macrostachya* which has much larger flowers and more pairs of leaflets. The new species grows in the restinga of coastal Bahia where many others of restricted range occur. The epithet provided refers to the small flowers.

***Swartzia peremarginata* Cowan, sp. nov.**

Description: Arbuscula 2 m alta, ramulis novellis tomentosis; stipulae persistentes lanceolatae, 2.5–3 mm longae, 0.7–1 mm latae, tomentosae extus; petioli 1.5–1.8 cm longi, tomentosi, teretes, brevi-stipellati; rhaches ca. 4 cm longae, tomentosae, teretes sed bistipellatae ad foliis; foliola 2-jugata, petiolulis 1.5–2 mm longis, tomentosis, laminis 5.5–8 cm longis,

3.5–6.5 cm latis, rigidis, obovatis vel ovatis ad basim aequilateralibus vel inaequilateralibus cordatis, ad apicem rotundatis et profunde emarginatis, supra venis primariisque planis sed infra plus minusve salientibus, glabris costa pilosa excepta, supra infra pilosa; inflorescentiae fructiferi ramuligerae, 11–14 cm longae, axe leviter pilosuloso, bracteis persistentibus, 1.5 mm longis et latis, triangularibus, strigulosis extus, bracteolis nullis; pedicelli 5–9 mm longi, glabri; calycis segmenta 3 vel 4, persistens glabra, ca. 7 mm longa, margine incrassata extus; flores non vidi; fructus submaturus globosus, glaber, ca. 2 cm diametro.

Type-Collection: R. P. Belém et R. S. Pinheiro 2377 (holotype NY, isotype US), coastal scrub," margem da Rodovia, Una Olivença, Bahia," Brazil, 1 June 1966.

Discussion and Etymology: This is an extremely interesting new species, so distinctive that it can safely be described without flowering material. The form of the fruits suggests a relationship with the *S. apetala* complex but it is quite dissimilar vegetatively. Its rigid, obovate, deeply emarginate leaflets (which the specific epithet emphasizes) separate it clearly from any part of that complex or from any other species in the genus.

Flowering material would be most welcome, especially in view of the unique structure of the persistent calyx segments. In this instance, these might be referred to as "sepals," because each segment has a thickened, well-differentiated margin that probably causes the buds to exhibit about three prominent longitudinal ridges. If the sepals are as clearly determined as appears to be the case, this is the only species so characterized.

***Swartzia tillettii* Cowan, sp. nov.**

Description: Arbor ad 25 m alta, ad basim 4 dm diametro, ramulis dense nigro-tomentosis, plus minusve striatis; stipulae caducae, 8–10 mm longae, 6–7 mm latae, oblique ovatae acutae, extus dense tomentosae; petioli 5.5–6 cm longi, dense tomentosi, supra leviter canaliculati, rhachi 11–17 cm longa, tereti sed leviter canaliculata et inconspicue stipellata; foliola (2-) vel 3-jugata, petiolulis ca. 4 mm longis, tomentosis, laminis margine late devolutis, 11–21 cm longis, 7–10 cm latis, rotundatis ad obovatis, basi rotundato-obtusis, apice rotundatis, supra ad costam strigulosis infra albo-strigulosis (ad venas tomentosis exceptis), venis primariis et costa supra impressis sed infra salientibus; inflorescentiae ramuligerae, 6–15 cm longae, axe atro-brunneo-tomentoso, bracteis persistentibus, ca. 4 mm longis et latis, late ovatis concavis extus tomentosis, bracteolis persistentibus, 3–4 mm longis, ca. 2 mm latis, lanceolatis, ad apicem pedicellorum nascentibus; pedicelli 25–30 mm longis, laterale valde compressi clavati, tomentosi; alabastra ovalia, 18–20 mm longa, 14–16 mm diametro; calycis segmenta crassa, rigido-coriacea, extus atro-brunneo-tomentosa, intus glabra; petalum luteum, mox deciduum, lamina ad basim intus et extus villosa, venis extus et intus villosis, extus brunneis, unguiculo ca. 4 mm longo, lamina 70–80 mm longa, 90–95 mm lata, oblata, base valde

cordata; stamina maiora ca. 6, glabra, filamentis ca. 20 mm longis, antheris non visis; stamina minora glabra, filamentis ca. 10 mm longis, antheris ovalibus; gynoeceium tomentosum, stigma et stylo non visis, ovario ca. 55 mm longo et 3.5 mm lato, lineare, recto, gynophoro ca. 12 mm longo; fructus non visus.

Type-Collection: Stephen S. and Carolyn L. Tillett 45568 (holotype US, sheet no. 2448842, isotypes NY), "slopes of Karowtipu at ca. 950 m, Kako River, Guayana," 30 September 1960.

Discussion and Etymology: The nearest relative of *S. tillettii* (named for the collectors in recognition of the extremely valuable collections obtained by them on this expedition) is *S. pachyphylla* from the Mt. Roraima area. The new species has larger stipules, terete leaf rachis, differently shaped, larger leaflets, less obvious venation in the leaflets and the blades are strongly devolute. The pedicels are longer, the buds larger, and the petal is as large as in any species of the genus.

